Matt Cook and Janet Brennan Croft

Interactive mindfulness technology

A walking labyrinth in an academic library

Surprisingly peaceful. Very quick stress relief"; "It's cool and a good way to get focused again"; "Concentrating on my walking was very freeing"; "It gives me a way to step back amongst daily noise"; "I felt like it gave me a moment to breathe"; "It enhances the feeling that the library can be a peaceful escape + safe place to be."

These are a few of the reactions we heard when we placed a Sparq Meditation Labyrinth at the bottom of the main stairwell in the Bizzell Memorial Library on the University of Oklahoma (OU) Norman Campus. The Sparq is a temporary, portable installation that projects a labyrinth design on the floor using a theatrical spotlight.

Pima Indian labyrinth design.

What makes it unique is user choice: a touch-screen interface allows the Sparq user to select from a variety of culturally significant and aesthetically compelling labyrinth designs, and then engage with the projected pattern in a mindful and nonjudgmental awareness of the present moment. Engagement might take the form of a walk through the pattern, yoga, dance, or simply sitting in meditation.

With the Sparq, we attempted to address issues of stress, mental distraction, and bodily fatigue in a way uniquely suited to the academic library environment.

The problems

In the contemporary academic library, both user and staff experiences are centered on the computer, a constant source of information and distraction, data, and diversion. Computer users suffer from attention deficit, pulled this way and that by competing bids for their attention; inability to concentrate affects their performance. When one's attention is entirely focused on keyboard, monitor, and mouse, the other senses are constrained; the user's full body is not involved in what he or she is doing. Other learning styles are stifled in the computer-centric environment, particularly kinetic styles. Further, computer users are subject to a great deal of stress, tension, isolation, and fatigue, even if they do not realize it.

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One way to overcome these limitations to productivity is by promoting *mindful meditation techniques.* In this article we'll look at some specific problems associated with digitally centered work and study, discuss how we decided upon the labyrinth as an appropriate stress-reduction tool for the academic library, and then describe how we designed, developed, and tested the Sparq Meditation Labyrinth at OU and worked with other locations to further refine our design.

Chartres Cathedral labyrinth design.
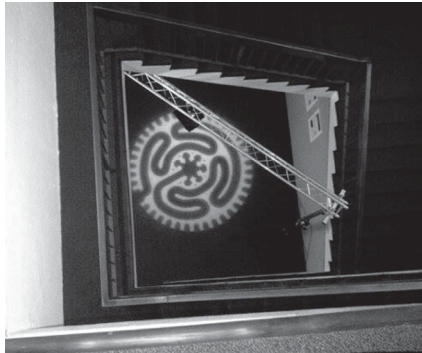
Counteracting stress

In late 2012 we gathered data to determine how space was being used in Bizzell Memorial Library, the central library on the main OU campus. We found that the percentage of users on computers and screen devices of any sort, their own or the library's, ranged from 40% to 80% at any time during the typical day.[1] And that's not even counting library staff using computers at their workspaces or at public service desks.

The contemporary academic library user is particularly susceptible to the distracting allure of social media websites—Facebook, Twitter, Tumblr, social gaming sites, and

Vedic labyrinth design.

so on. Research has shown that a staggering 90% of college students access social networking sites regularly, so it should come as no surprise that this damages academic performance.[2]

Beyond distraction and the lack of a tactile and kinetic aspect to computer-centered work, the other issue we wanted to address was stress. The negative effects of stress are pervasive in our society: "cardiovascular disease, cancer, diabetes, depression and anxiety, fatigue, obesity, and musculoskeletal pain" can all be caused or exacerbated by stress. "In fact, psychological stress and the associated chronic inflammatory response have been implicated in virtually all chronic conditions."[3]

These insights led us to search for some way to capitalize on the academic library's innate spatiality/physicality to both counteract the stressful negative effects of digital scholarship and the computer-centered workplace, and to support the learning styles of a greater number of users. Walking labyrinths fit the bill nicely.

The viability of labyrinths

Many medieval cathedrals incorporated walking labyrinths as a tool for guided contemplation of a higher power.[4] The practice goes back to prehistoric times; walking a unicursal (that is, single-pathed, in contrast to the maze, which has multiple paths and dead ends) pattern, whether inlaid on the floor of a religious structure or scratched in the earth, has long been used to enhance spiritual practice. It is only in recent times, however, that this form of meditation has entered the secular realm. Medical facilities have seen a tremendous surge in the installation of walking labyrinths, with new sites numbering in the hundreds. For example, the grounds of the Cecilio Cancer Center at

the Mid-Columbia Medical Center in Oregon features a walking labyrinth used by both patients and surgeons; the latter for the attainment of focus before a procedure and the former for reducing anxiety.[5]

The effects of labyrinth-walking on mental well-being are wide-ranging, overwhelmingly positive, and increasingly well-documented. The data indicates that a large percentage of test subjects experience significant drops in the intensity of negative psychological states (i.e., agitation, anxiety, stress) after walking the labyrinth. Labyrinth-walking also tended to improve *positive* mental states, with a majority of subjects reporting increased calmness, clarity, peacefulness, and relaxation.[6]

iPad Mini interface.

being, such as medical symptoms, sensory pain, physical impairment, and functional quality-of-life estimates."[8]

The Sparq

While our initial research was compelling, the logistical (and budgetary) problem of employing such a tool was daunting. Traditionally, labyrinths are permanent installations of brick, stone, or concrete. Although there are portable alternatives on the market, like printed or painted canvas labyrinths, installing a labyrinth is still a costly and labor-intensive ordeal requiring a dedicated space.

It became clear to us that a whole new method of labyrinth installation was needed. Coincidently, we were challenged by a colleague with another idea to consider: Does the design of the labyrinth impact its effectiveness? Would it be possible to test the effects of walking one labyrinth pattern against the effects of walking another?

Studies documenting the physiological benefits of walking the labyrinth in other (nonlibrary) contexts are also encouraging. Most notably, researcher Donna Zucker's six-week pilot study conducted on incarcerated subjects combined quantitative measurement of blood pressure, quality of life surveys, and qualitative data collected from journal entries. She concluded that "labyrinth walking can positively impact offenders' physical and mental health."[7]

Some of the most scientifically compelling evidence for the benefits of walking labyrinth meditation can be found in the literature of mindfulness-based stress reduction (MBSR). The benefits of this mental state can be profound; a comprehensive meta-analysis of MBSR studies concluded it had positive effects on "health parameters of physical well-

The Sparq Labyrinth was our answer to both the logistical problem and the research challenge. It is a projector-based labyrinth system that allows the user to change patterns (or put the system to sleep) instantly via a touch-screen interface. Off-the-shelf components used to build the system included theater-style lighting and a supporting truss system, an iPad mini, and a rotating frame controlled by the iPad. We had a series of etched glass stencils (gobos) custom-made. The size of the projected pattern is determined by the height to which the projector is raised.

We organized our first trial installation during the 2013 fall finals period. We were fortunate in being able to set up in the dramatic and highly visible location at the bottom of the main stairwell in the busy newer wing of the library. In addition to the labyrinth projector itself, two library-related tie-ins helped showcase the Sparq and its benefits. During the initial installation, the library special collections mounted a rotating display of materials, focusing on a different aspect of labyrinths every few weeks: labyrinths in literature and mythology, in garden design and architecture, and in mathematics and science.

We also designed an educational poster to go along with each of the six available labyrinth designs (ranging in origin from native America to Ancient India to medieval Europe), which have since become a staple of Sparq installations at other locations. The posters display information about the culture or artifact from which each design was drawn, and list additional sources in the library.

Our initial results

We surveyed users, asking simple questions about their emotional state before and after walking the labyrinth, their previous experience with labyrinths, why they picked the pattern they decided to walk, and some basic demographic information.

Our initial results were encouraging. Most users (around 65%) found that the experience left them more or much more relaxed and less anxious. The comments at the head of this article reflect the typical reaction of our users. One user, a graduate teaching assistant, went into detail, saying:

> I have ADHD and the labyrinth made a tremendous difference in reducing the level of anxiety I usually feel around finals. After taking a short break walking the labyrinth, I literally felt like a new person (no stress, anxiety, able to take deeper breaths, felt overall tranquility which is almost impossible for me to do—especially in that amount of time).

We were particularly delighted by some of the more idiosyncratic reactions.

Moments after the Sparq was first installed, for example, a library patron's two children immediately began interacting with it; one became absorbed in reading all the posters, while the other sat down on the floor and started sketching the designs. Students were seen spreading their work out across the labyrinth or praying or meditating with their pile of books during finals week.

Overall, both data and anecdotal observations were encouraging, and we are confident our hypothesis—that labyrinth meditation benefits academic library patrons—at least warrants further exploration beyond this survey-based pilot stage, and we have partnered with researchers at institutions nationwide to that end.

Indeed, we encourage any researchers/mindfulness advocates/academic institutions intrigued by this study to reach out to us about installing a Sparq labyrinth on their premises and finding out for themselves whether their clientele would benefit from this interactive mindfulness technology.

Acknowledgments

Notes

1. OU Libraries conducted a manual count of space usage during a two-month period beginning at the end of the fall 2012 semester and ending early 2013. Data was gathered via hourly counts on a paper form and eventually transferred to spreadsheet. Device usage was just one of several parameters studied.

2. E. Dahlstrom et al., ECAR National Study of Undergraduate Students and Information Technology (Educause 2011): http://net.edu-cause.edu/ir/library/pdf/ERS1103/ERS1103W.pdf. Additionally, J.A. Paul, H.M. Baker, and J.D. Cochran (2012) concluded that there

exists a "statistically significant" link between attention deficit and lower academic performance with time spent on social networking sites in "Effect of online social networking on student academic performance," *Computers in Human Behavior* 28 (2012): 2117–2127. See also M. Prensky, *Brain Gain: Technology and the Quest for Digital Wisdom* (Palgrave Macmillan: New York, 2012).

3. K. L. Wolever et al., "Effective and viable mind-body stress reduction in the workplace: A randomized controlled trial," *Journal of Occupational Health Psychology,* 17.2 (2012): 246–58.

4. B. Michels, D. Maxwell, and C-W. Chang, "Labyrinths: Yesterday, Today and Tomorrow–Implications for Education," *Critical Questions in Education,* 1:1 (2011): 26–39.

5. M. Shindle, "Walking the Labyrinth: An exercise in self-healing," *American Nurse Today* 3.8 (2008): 28–29.

6. J. Rhodes, "Commonly Reported Effects of Labyrinth Walking," *Labyrinth Pathways* (2008).

7. M. Zucker, "Labyrinth Walking in Corrections," *Journal of Addictions Nursing* 23 (2012): 47–54. Available at: http://works.bepress.com/donna_zucker/19.

8. P. Grossman, L. Neimann, S. Schmidt, and H. Walach, "Mindfulness-based stress reduction and health benefits: A meta analysis," *Journal of Psychosomatic Research* 57 (2004): 35-43; see also K. Baicker, D. Cutler, and Z. Song, "Workplace wellness programs can generate savings," *Health Affairs* 29.2 (2010): 304–11. ✐

"Micro assessing" (cont. from page 304)

and even remote researchers—patron groups that often fall outside of traditional feedback and assessment data collection mechanisms, patron groups that we may never see or know about beyond as a blip in our web analytics. The concreteness of the individual stories in the logs helps the library stay attuned to the variety of patron activity and to plan services and resources creatively.

Library Impact Story Logs. Simple idea. Big return.

Note

1. "Theological Commons," Princeton Theological Seminary Library, accessed September 10, 2014, http://commons.ptsem.edu. ✐

"Past overdue!" (cont. from page 316)

Opposition

• **Family Research Council (FRC).** FightENDA.org is a campaign of FRC Action. This arm of the FRC, formed in 1992, was formed to educate society on the "traditional American values." Though the website has not been updated since 1993, it outlines the reasoning behind their opposition to employment protections for LGBT Americans. *Access:* http://www.fightenda.org/.

• **The Heritage Foundation.** This think tank, created in 1973 promotes conservative public policies. This page outlines the danger of providing workplace protections under ENDA and proposes that increased employment protections would weaken the First Amendment, lead to same-sex marriage, and threaten businesses. *Access:* http://www.

heritage.org/research/reports/2013/11/enda-threatens-fundamental-civil-liberties.

Notes

1. http://www.americanprogress.org/issues/lgbt/report/2013/06/04/65133/a-broken-bargain/.

2. http://www.advocate.com/employment-discrimination/2014/05/08/study-majority-lgbt-workers-closeted-job.

3. https://www.whitehouse.gov/blog/2015/04/08/another-step-toward-equality-lgbt-workers.

4. http://www.nytimes.com/2014/12/05/us/advocates-seek-civil-rights-bill-for-lesbian-gay-bisexual-and-transgender-americans.html. ✐